

Brief review of world basic demographic trends

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<http://gsociology.icaap.org/>

In this review, we describe **world demographic characteristics** and **changes in those characteristics**.

Specific characteristics include:

Population size and growth: 1960, 1980, and 2001, data from the [U.S. Census Bureau, International Data Base](#) .

Infant mortality rate: 1960 to 2000, data from [Unicef](#) , and 1980 and 2001, data from [U.S. Census Bureau, International Data Base](#) .

Percent of population age 60 or over: 1990 and 2000, data from [WHO Statistical Annex](#) , and for the same years, data from [U.S. Census Bureau, International Data Base](#) .

Fertility: 1980 and 2001, data from [U.S. Census Bureau, International Data Base](#) .

These characteristics are described because there are data sets containing them which are freely available, include data for more than 100 countries, and cover time periods of 20 years or more (except aging population).

We also compare the results reported here to findings and conclusions reported by other organizations, who use their own data sets. For example, we compare results to findings from the World Resources Institute, the Population Reference Bureau, and other UN reports. As described below, the conclusions reported here are similar to conclusions from other organizations.

Finally, in the appendix, we describe the data in detail.

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I Summary

World Population Trends: World population **growth has slowed**.

Table 1
Summary, Population Change

	N	Annual Average Growth Rate 1960-80	Annual Average Growth Rate 1980-01
All	223	2.33%	1.82%
Less Developed	167	2.93%	2.25%
More Developed	56	0.94%	0.48%

Data source: [U.S. Census Bureau, International Data Base](#)

The world population growth has been decelerating since 1970. This decline occurred for the world as a whole, for the group of less developed countries and for the group of more developed countries. However, the decline in growth rate among the more developed countries was larger than it was among the less developed countries.

The growth rate for less developed is higher than is the growth rate for more developed countries, almost 3 times as high in 1960-1980, and almost 5 times as high in 1980-2001.

A consequence of the higher growth rate among less developed countries is that population in the less developed countries is becoming an increasingly large proportion of world population, growing from 70% in 1960 to 81% in 2001.

Infant Mortality Rates: **Infant mortality rate (IMR) has declined**.

Table 2
Summary, Infant Mortality Rate
(ratio of deaths under 1 year to 1,000 births in the same year.)

Regional summaries	1960 N = 159	2000 N = 187
Industrialized countries	31	6
Developing countries	141	63
Least developed countries	170	102
World	126	57

Data source: <http://childinfo.org/cmr/revis/db1.htm>

For the world, and for both LDCs and MDCs IMR declined significantly between 1960 and 2001.

However, IMR remained higher in LDCs. In 2001, the Infant Mortality Rate for Less Developed Countries was about 10 times as large as it was for More Developed Countries. For Least Developed Countries, the Infant Mortality Rate is 17 times as high as it is for More Developed Countries. Also, while both LDCs and MDCs made dramatic reductions in infant mortality rates, reductions among less developed countries are much less than are reductions

among the more developed countries, on average.

Age Distribution

There have been small changes in **age distribution**.

Table 3
Summary, Population Age Distribution (WHO data)

	N	1990 pct pop age 60+	2000 pct pop age 60+
World	187	8.95%	9.97%
MDC	45	17.7%	19.4%
LDC	142	6.8%	7.7%

Data source: <http://www.who.int/whr/2001/annex/en/>

The percent of population that is older increased slightly between 1990 and 2000. The increase was larger within more developed countries.

The percent of population that is older is almost three times as high in more developed countries as it is in less developed countries.

Fertility

Fertility has declined.

Table 4
Summary, Births per 1000 population (bpk), 1980 and 2001

	N	bpk 1980	Bpk 2001
World	133	30.2	22.7
More Developed Countries	34	15.1	11.9
Less Developed Countries	99	36.1	25.9

Data source: [U.S. Census Bureau, International Data Base](http://www.census.gov/ipeds/data/international/)

Births per 1000 population (BPK) declined between 1980 and 2001 for the world, for more developed countries and for less developed countries. However, BPK remained twice as high in LDCs as it was in MDCs.

Demographic Transition

One cause of the trends above is that the **demographic transition** (change from high birth and death rates to lower rates) has already happened in the more developed regions, and is now happening in less developed regions.

II Detailed Analysis

A. Population size and growth for total, and more/less developed.

Table 5 below shows mid year population and population growth for 223 countries and states of the world.

Table 5
Population and Population Change
223 countries and states

	N	Mid Year Population 1960 (millions)	Mid Year Population 1980 (millions)	Mid Year Population 2001 (millions)	Growth 60-80	Growth 80-01	Annual Average Growth Rate 60-80	Annual Average Growth Rate 80-01
All	223	3039	4456	3039	46.61%	38.18%	2.33%	1.82%
Less Developed	167	4968	3375	2129	58.53%	47.21%	2.93%	2.25%
More Developed	56	1189	1081	910	18.72%	9.99%	0.94%	0.48%
LDC as pct of Total		81.00%	76%	81%				

Data source: [U.S. Census Bureau, International Data Base](#)

There are several main findings.

First, there was a **decline in the growth rate between 1960-1980 and 1980-2001**. This decline occurred for the world as a whole, for the group of less developed countries and for the group of more developed countries. However, the decline in growth rate among the more developed countries was larger than it was among the less developed countries.

Second, the **growth rate for less developed is higher than is the growth rate for more developed countries**, almost 3 times as high in 1960-1980, and almost 5 times as high in 1980-2001. A consequence of the higher growth rate among less developed countries is that **population in the less developed countries is becoming an increasingly large proportion of world population**, growing from 70% in 1960 to 81% in 2001.

Also, although not shown in the tables above, **growth rates varied considerably**. A number of countries **lost population** between 1980 and 2001, although less than 2% per year, and a few countries had very high growth rates.

Countries that lost population from 1980 to 2001
(less than 2% a year)

Central/South America

**Antigua and Barbuda, Dominica,
Granada, Guyana, Monserratt, Saint
Kitts and Nevis**

Eastern Europe countries:

**Bulgaria, Hungary, Bosnia and
Herzegovina, Estonia, Ukraine,
Georgia, Croatia, Latvia, and the
Czech Republic**

Western Europe:

Gibraltar

Countries with highest growth from 1980 to 2001.

10-17% a year:

Africa

Mayotte

Middle East

Qatar

Asia/Oceania

Northern Mariana Islands

74% a year

West Bank

Finally, there were countries and states for which the growth rates did not decline from 60-80 to 80-01. These included several which had small growth in 60-80 (0-2% annually) and then had larger growth in 80-01 (3-6% annually), such as Yemen, Cambodia, Anguilla and Guinea-Bissau. These also included those few countries and states that had very high growth rates in 80-01, again, Mayotte, Northern Mariana Islands, and the West Bank.

B. Infant mortality rates (IMR) for total, and more/less developed countries

Tables 6 and 7 show infant mortality data from Unicef and from the US Census bureau.

Table 6
Infant Mortality Rates
(Unicef Data)

Regional summaries	1960 N = 159	1970 N = 159	1980 N = 171	1990 N = 182	1995 N = 185	2000 N = 187
Industrialized countries	31	20	12	8	6	6
Developing countries	141	108	88	70	66	63
Least developed countries	170	150	130	114	108	102
World	126	96	79	64	60	57

Data source: <http://childinfo.org/cmr/revis/db1.htm>

Table 7
Infant Mortality Rates
(US Census Data)

	N	IMR 1980	IMR 2001	IMR Range 1980	IMR Range 2001
World	113	89.33	54.28	7 to 189	3.5 to 147
LDC	83	102.33	60.89	11 to 189	4 to 147
MDC	30	13.08	6.3	7 to 25 ¹	3.5 to 19

Data source: [U.S. Census Bureau, International Data Base](http://www.census.gov/data/tables/2001/2001.html)

1: Two countries had IMR of 30 or more, and are not included in table 7. The IMR for the remaining 25 countries were below 25.

Tables 6 and 7 show similar results.

First, **IMR declined significantly between 1960 and 2001**, for the world, and for both LDCs and MDCs. For example, the US Census data show that the IMR for MDCs in 2001 was less than half of what it had been in 1980, and the IMR for LDCs was almost half of what it had been in 1980. Unicef results are similar, except that for LDCs, the decline by half occurred between 1970 and 2000. The Unicef data also show that the main decline happened between 1960 and 1980.

Infant mortality rate was and still is very high for some countries. In 2001, the Infant Mortality Rate for Less Developed Countries, on average, was about 10 times as large as it was for More Developed Countries. For Least Developed Countries, the Infant Mortality Rate is, on average, 17 times as high as it is for More Developed Countries.

While both LDCs and MDCs, on average, made dramatic improvements, **improvements for less developed countries are much slower than are improvements among the more developed countries.**

As above, infant mortality rates vary considerably among countries.

Less Developed Countries with
Highest Infant Mortalit Rate in 2000 (IMR > 150)

African states:

**Sierra Leone, Angola, Liberia, and
Niger**

Asia/Oceana

Afghanistan

More Developed Countries with
Highest Infant Mortalit Rate in 2000 (IMR 18-27)

Easters European states

**Albania, Moldova, Macedonia,
Romania and the Russian Federation**

Less Developed Countries with
Lowest Infant Mortalit Rate in 2000 (IMR less than
10)

Asia and Oceana

**Brunei, Malaysia, Singapore, South
Korea**

Central/South America

Cuba, Costa Rica and Chile

Middle East states:

**Cyprus, Israel,
Kuwait, United
Arab Emirates**

Less Developed Countries with largest improvement
between 1980 and 2000
(LDC declined 60 percentage points or more)

Africa

Egypt, Guinea

Asia/Oceania

Bangladesh, Nepal

Middle East

Oman

Western Europe

Turkey

Less Developed Countries with increases in IMR
between 1980 and 2000
(IMR increased 10 percentage points or more)

Africa

Angola, Botswana, Zambia

Eastern Europe

Kazakhstan

Middle East

Iraq

C. Age distribution.

Tables 8 and 9 show changes in population age over time.

Table 8
Population age distribution
(WHO Data)

	N	pop 1990	pop 2000	1990 pop age 60+	2000 pop age 60+	1990 pct pop age 60+	2000 pct pop age 60+
world	187	5,900,322	5,988,845	528,224	597,221	8.95%	9.97%
more devel	45	1,175,908	1,180,425	207,843	229,182	17.68%	19.42%
less devel	142	4,724,414	4,808,420	320,380	368,040	6.78%	7.65%

Data source: <http://www.who.int/whr/2001/annex/en/>

Table 9
Population age distribution
(US Census Data)

	N	Population Total	People over age 65	People age 0 to 4	Percent age 0 to 4	Percent over age 65
2001						
world	177	4,471,479,856	310,648,311	444,166,103	9.9%	6.9%
LDC	149	3,660,895,326	197,916,972	398,056,979	10.9%	5.4%
MDC	28	810,584,530	112,731,339	46,109,124	5.7%	13.9%
1990						
world	177	3,829,788,186	227,864,249	450,657,484	11.8%	5.9%
LDC	149	3,059,751,995	137,232,301	395,880,922	12.9%	4.5%
MDC	28	770,036,191	90,631,948	54,776,562	7.1%	11.8%

Data source: [U.S. Census Bureau, International Data Base](#)

Division of countries into more/less developed from US Census database categorization. Several countries are not categorized, so this table excludes countries for which US Census didn't assign a category.

Tables 8 and 9 show that the age distributions for LDCs and MDCs are quite different. More Developed Countries generally have a larger percent of their population as elderly, and a smaller percent age 0 to 4. Between 1990 and 2001, the percent elderly population increased for both LCDs and MCDs, although only by one or two percentage points. The increase was slightly larger among MDCs. Similarly, percent population age 0 to 4 decreased for both LDCs and MDCs. In this case, though, the decrease was slightly larger for LDCs.

D. Fertility and birth rates.

Table 10
Births per 1000 population, 1980 and 2001

	N	Pop 1980	pop 2001	births 1980	births 2001	bpk 1980	bpk 2001
World	133	2,377,500,598	3,382,198,755	71,732,058	76,834,163	30.2	22.7
MDC	34	672,993,242	763,169,331	10,170,243	9,052,245	15.1	11.9
LDC	99	1,704,507,356	2,619,029,424	61,561,815	67,781,918	36.1	25.9

Data source: [U.S. Census Bureau, International Data Base](#)

Table 10 shows that total births per 1000 population (BPK) both varied and changed over time. Births per 1000 population declined between 1980 and 2001 for the world, for more developed countries and for less developed countries. However, BPK remained twice as high in LDCs as it was in MDCs.

Highest and lowest births per 1000 in 2001 are shown below.

<p>Less Developed Countries with <u>Highest BPK</u> in 2001 (BPK > 43)</p> <p>Africa</p> <p>Benin, Chad, Liberia, Somalia, Sierra Leone, and Uganda</p> <p>Middle East</p> <p>Yemen</p>
<p>Less Developed Countries with <u>Lowest BPK</u> in 2001 (BPK < 15)</p> <p>Asia/Oceania</p> <p>Hong Kong, Macau, Singapore,</p> <p>Middle East</p> <p>Cyprus</p> <p>Central and South America</p> <p>Barbados, the Cayman Islands, Cuba, Trinidad and Tobago</p>
<p>More Developed Countries BPK in 2001</p> <p>All had BPK between 8 and 19</p>

There were also variations in changes in BPK.

Less Developed Countries Births per 1000 <u>increased</u> from 1980 to 2001 (less than 2 percentage points) Comoros, Liberia and Somalia
Less Developed Countries BPK showed <u>small declines</u> from 1980 to 2001 (less than 2 percentage points) Martinique, Sierra Leone, Uruguay, Chad, Montserrat and Cuba
Less Developed Countries <u>Largest decline</u> in BPK from 1980 to 2001 (17 percentage points or more) Kenya, Algeria, Vanuatu, Tunisia and Jordan
More Developed Countries Births per 1000 <u>increased</u> from 1980 to 2001 (less than 1 percentage point) Saint Pierre and Miquelon, Luxembourg, Norway, Jersey, and Isle of Man
More Developed Countries <u>Largest decline</u> in BPK from 1980 to 2001 (6-9 percentage points) Bulgaria, Romania, Albania, Gibraltar and Poland

We used births per 1000 population as our fertility indicator. We compared BPK to total fertility rate, from a UNDP 2001 Human Development report, at http://www.undp.org/hdr2001/indicator/indic_56_1_1.html and found that BPK and Total Fertility Rate (TFR) correlated at 0.95. Thus, the results found for BPK apply to changes in TFR over time as well.

III Appendix

A. Comparisons with reports from other sources

A number of other reports also describe data or trends about demographics, fertility and other variables described above. Some of these reports include:

1997 Report on the World Social Situation Part One. SOCIAL CONDITIONS, Chapter II, Population Trends.

<http://www.un.org/esa/socdev/rwss/rwss2003.htm> shows population tables and discusses other trends. They show similar population growth trends. This report also discusses the decline in total fertility rates, for the world, less and more developed regions, and variations in the less developed regions. For example, "during 1990-1995 the average TFR for the more developed region was only 1.7 births per woman compared with 5.5 births for the least developed countries" and By 1990-1995, despite a slow but continuous decline, Africa's TFR was still estimated to be as high as 5.7, compared with 2.9 in Latin America and 2.8 in Asia. The decennial decline of 10 per cent during that period is less than half the decline in Asia and Latin America" (both quotes from <http://www.un.org/esa/socdev/rwss/rwss2003.htm>). This report also discusses declines in mortality and increases in life expectancy. They also discuss regional variations, for example that life expectancy is the highest in North America and Europe, and the lowest in Africa. They also discuss regional variations in increases in life expectancy.

Human Development Indicators, from the UN Development Program. Population Trends

<http://hdr.undp.org/statistics/data/> shows population and population growth. Their results are also similar.

The United Nations and Global Governance in the New Millennium

<http://www.unu.edu/millennium/human.html> Population report, by Wolfgang Lutz, International Institute for Applied Systems Analysis, also shows decline in population growth rates, and decline in fertility rate. Dr. Lutz mentions, for example, that decreasing mortality combined with high fertility resulted in very high population growth in less developed regions in the 1950's, 60's and 70's. He also describes the 'demographic transition' theory, which is that as living standards and health conditions get better, mortality rates decline, then later fertility rates decline. Various explanations are offered for this pattern. The demographic transition happened slowly in Europe and North America, and is now happening very quickly in less developed regions. The decline in mortality already happened, and now the decline in fertility is starting. See Dr. Lutz's report at <http://www.unu.edu/millennium/Lutz.pdf>

State of the world population report, at <http://www.unfpa.org/swp/swpmain.htm> including a conclusion of the SWP report

<http://www.unfpa.org/swp/2001/english/ch01.html#1b> that fertility in developing countries has dropped in the past several decades, and that fertility in industrial countries has dropped as well.

World Resources Institute <http://earthtrends.wri.org/datatables/index.cfm?theme=4> especially the Demographic Indicators table, and in the Mortality table. The recent data show similar patterns for population change and mortality.

National Academy Press, Preparing for an Aging World. <http://www.nap.edu/catalog/10120.html> includes discussion of growth of aging population of the world, based on lower fertility and better health leading to longer lives.

The Rand Corporation also has a policy brief of this book at <http://www.rand.org/publications/RB/RB5058/>

Also see the PRB report **World Population Beyond Six Billion** at <http://www.prb.org/> then click on population bulletin, then 1999. This describes long term world population changes, the demographic transition, population changes between 1950-1990/98, and the role of life expectancy and fertility declines, among other variables. Fertility declines, for example, declined the most in Asia and Latin America, but not very much in Africa.

World Population Change: Boom or Bust?

http://www.uwsp.edu/business/economicswisconsin/e_lecture/pop_sum.htm e-lecture by Larry Weiser and Bob Enright, on economics of population change. This discusses population changes and reasons for changes, for example that the last 50 years has seen declines in fertility, especially among high income countries. They write, non economic reasons for fertility decline include "improved contraceptives, increased knowledge and acceptance of contraceptives, and reduced child mortality. Lower child mortality is especially important because if the goal of parents is to have a certain number of surviving children, then they can achieve their goal with less births." Economic reasons include "high rates of urbanization increase the cost-benefit ratio of children, increased education of women has raised their earning power and increased the "opportunity cost" of child bearing and child rearing, rapid technological change has raised the rate of return to human capital and education."

World Population Profile: 1998 <http://www.census.gov/ipc/www/wp98.html> includes a brief discussion of the demographic transition, that is, the change from high birth and death rates to lower rates. For example, by the 1960's, the more developed regions had completed their demographic transitions, and now the transitions were happening for the less developed regions. First, the gap between birth and death rates widened as improved medicine and public health practices led to declines in mortality. Then later, birth rates fell. This report also mentions the different population trends in eastern Europe countries and the New Independent States (former USSR states), which have pronounced declines in growth.

B. Data

Population: U.S. Bureau of Census

The US Census Bureau developed an International Data Base, available at <http://www.census.gov/ipc/www/idbnew.html> which "is a computerized data bank containing statistical tables of demographic, and socio-economic data for 227 countries and areas of the world." The data base contains data on variables such as population, percent urban, births, deaths, fertility rates, and others. The data set is fairly complete for most demographic and socio-economic variables for the year 2000. Completeness for variables for other years vary quite a bit. For example, population estimates and projections are available for all countries for time periods from 1950 to 2050. On the other hand, infant mortality is only available for 110 countries for 1980.

The Census Bureau reports data for countries and states. The Census Bureau uses term defined by the U.S. State Department. According to the State Department, at <http://www.state.gov/s/inr/rls/4250.htm> there are

191 "independent states". This term **"refers to a people politically organized into a sovereign state with a definite territory recognized as independent by the US."** The State Department doesn't seem to define dependencies, but lists them, along with their sovereignty, at <http://www.state.gov/www/regions/dependencies.html> These include areas such as American Samoa, Cayman Islands, Hong Kong, Saint Helena and Wake Island. The US Census data set has a very comprehensive list of countries and states, and this list serves as our basic list of countries and states.

The Census Bureau also categorizes countries and states into more and less developed. At the International Data Base page <http://www.census.gov/ipc/www/idbnew.html> click on **Online Demographic Aggregation**, then select **User configurable** for output type. For **Online Demographic Aggregation**, click "Both region and country data" to get a listing of both more and less developed countries and states. We use the Census Bureau's categorization of more and less developed countries.

The Census Bureau's data set is public domain. We've reformatted a data set with the variables used here, in lotus123 and excel format. Click [here](#) to access the data set.

Infant Mortality: Unicef

Infant mortality data is from Unicef, at <http://childinfo.org/cmr/revis/db1.htm> Documentation on how data are obtained or estimated is available at <http://childinfo.org/cmr/revis/kh98meth.html> According to chapter 2, infant mortality rate is the ratio of deaths under 1 year to 1,000 births in the same year. For countries with reliable registry data, data are obtained from civil registries. For countries without reliable registry data, Unicef uses various survey data for estimations. Chapter 2 lists some of the surveys.

Unicef has infant mortality data or estimates for most of the world. For example, for 1980, countries with infant mortality data include 98 percent of the world population.

The Unicef site also presents data for "industrialized", "developing" and "least developed" groupings, but doesn't seem to indicate how those categories are constructed.

Age distribution data: WHO

The WHO notes page <http://www.who.int/whr/2001/annex/en/> says that they present data on 191 countries, based on "a systematic review of all available evidence from surveys, censuses, sample registration systems, population laboratories and vital registration on levels and trends in child mortality and adult mortality." They especially cite UNICEF, the United States Census Bureau and the UN Population Division 2000 demographic assessment. Most of the data presented at the WHO site is for 2000. They present age distributions and total fertility rates for 1990 and 2000.

These tables were prepared using the following programs:

[lotus 123](#)

Star Office a free Sun Microsystems office package. - no longer available for free from SUN, but is available from Twocows. Now we use [OpenOffice](#), based on star office.

[EditPad](#) , a free text editor.

Needless to say we are greatly in favor of free software.